المرحلة الثانية – الكورس الأول

1-لغة البايثون

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**BASIC PYTHON SYNTAX**
Week 2	**VARIABLE TYPES**
Week 3	**BASIC OPERATORS**
Week 4	**DECISION MAKING**
Week 5	**LOOPS**
Week 6	**NUMBERS**
Week 7	**STRINGS**
Week 8	**LISTS**
Week 9	**DICTIONARY**
Week 10	**DICTIONARY**
Week 11	**FUNCTIONS**

Week 12	**FUNCTIONS**
Week 13	**MODULES**
Week 14	**FILES I/O**
Week 15	**FILES I/O**
Week 16	**Final Exam**

2-التحليل العددي

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to numerical analysis+ Solution of non-linear equations, Newton Raphson method for approximating, Lagrange approximation**
Week 2	**Numerical differentiation and numerical integration, The Solutions of Integral equations, Trapezoidal method Simpsons method**
Week 3	**Simpsons method(3/8)**
Week 4	**numarical differentiation, Euler method, modified Euler method**

Week 5	**Rung Kutta method, Rung Kutta-merson method**
Week 6	**Introduction and soiution of Partial differential equations**
Week 7	**Formation of Partial differential equations And solution of separable first order**
Week 8	**Types of partial differential equations,wave equation,heat equation**
Week 9	**Solution sys of linear equation, Elimination and iterative methods**
Week 10	**Solution sys of linear eq by Cramer's rule, solve by inverse matri**
Week 11	**Method of least square**
Week 12	**introduction to Fourier series**
Week 13	**Fourier series for odd and even functions, Half range Fourier series**
Week 14	**Change of interval Fourier series**
Week 15	**Mid Term Exam and Preparatory Week**
Week 16	**Final Exam**

3-هياكل البيانات

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	➢ **Introduction to data structures:** • How to choose the suitable data structure • Types of sata structures
Week 2	➢ **Memory Representation** • Introduction to abstract data type
Week 3	• Stack, The stack abstract data type • Array stack • Stack operations • Time complexity of these operations
Week 4	➢ **Applications of stack operations**
Week 5	➢ **The queue abstract data type** • Queue operations • Time complexity of operations
Week 6	➢ **Circular queue and priority queues:** • The abstract data type • Operations
Week 7	➢ **Lists:** • **Array list**
Week 8	➢ **The array list abstract data type**
Week 9	➢ **Linked List** • Storage Allocation • Pointers
Week 10	➢ **Traversing a linked list** ➢ **Linked list operations**
Week 11	➢ **Linked list design modification:** • Circular linked list • Circular linked list operations
Week 12	➢ **Traversing circular linked list**
Week 13	➢ **Linked list design modification:** • Doubly linked list • Doubly linked list operations
Week 14	➢ **Linked stack, linked queue, Linked circular**
Week 15	**Queue Operations**

4-البرمجة الكنائيه

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	➢ **Overview for functions and parameter transmission** • Function Overloading and Inline Function • Default Argument ,Pass by Reference and Return by Reference
Week 2	➢ **Introduction to Object Oriented Programming** • Concept of Object Oriented Programming: Object, Class, Abstraction, Encapsulation, Inheritance, Polymorphism
Week 3	• Objects and the Member Access , Defining Member Function • Object as Function Arguments and Return Type
Week 4	➢ **Constructor and Destructors**
Week 5	➢ **Friend Function and Friend Classes**
Week 6	• Constant Member Functions and Constant Objects • Static Data Member and Static Function
Week 7	➢ **Pointer to Objects and Member Access**
Week 8	➢ **Array of Objects**
Week 9	➢ **Operator Overloading** • Overloading Operators and Syntax of Operator Overloading • Unary Operator Overloading and its types
Week 10	➢ **Binary Operator Overloading**
Week 11	➢ **Inheritance** • Base and Derived Class • Derived Class Declaration • Inheritance and derived classes
Week 12	➢ **Forms of Inheritance:** • Single and Hierarchical • Multiple • Multilevel
Week 13	➢ **Polymorphism and Dynamic Binding** • Types of polymorphism , Need of Virtual Function • Pointer to Derived Class • Definition of Virtual Functions • Array of Pointers to Base Class • Pure Virtual functions and Abstract Class
Week 14	➢ **Templates** • Function Template • Overloading Function Template • Class Template ○ Function Definition of Class Template ○ Default Arguments with Class Template ○ Derived Class Template
Week 15	**Mid Term Exam and Preparatory Week**
Week 16	**Final Exam**

5-استيراتيجيات البحث

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Problem in AI (Problem state space, Search space and Problem solving)
Week 2	AI production system components (Knowledge base, Inference engine, Working memory and User Interface)
Week 3	Forward chaining (FW)
Week 4	Backward chaining (BW)
Week 5	Rule Cycle (Hybrid method)
Week 6	Determining the control strategy for some problems
Week 7	Working memory via BW chaining (mechanism and AND-OR graph representation)
Week 8	Working memory via FW chaining (mechanism and search graph representation)
Week 9	Path building using BW chaining
Week 10	Path building using FW chaining
Week 11	AI search taxonomy
Week 12	Depth first search
Week 13	Breadth first search
Week 14	Problem Reduction Using AND/OR Graphs
Week 15	Constraint Satisfaction Problems

6-جرائم حزب البعث

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥/مفهوم الجرائم وأقسامها
Week 2	جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام ٢٠٠٥/انواع الجرائم الدولية/القرارات الصادرة من المحكمة الجنائية العليا
Week 3	الجرائم النفسية والاجتماعية / اليات الجرائم النفسية / أثار الجرائم النفسية
Week 4	الجرائم الاجتماعية / عسكرة المجتمع
Week 5	موقف النظام البعثي من الدين
Week 6	انتهاكات القوانين العراقية (1)
Week 7	انتهاكات القوانين العراقية (2)
Week 8	بعض قرارات الانتهاكات السياسسية والعسكرية لنظام البعث / اماكن السجون و الاحتجاز لنظام البعث
Week 9	الجرائم البيئية لنظام البعث في العراق/التلوث الحربي والإشعاعي وانفجار الالغام
Week 10	تدمير المدن والقرى (سياسة الأرض المحروقة)
Week 11	تجفيف الأهوار
Week 12	تجريف بساتين النخيل والأشجار والمزروعات
Week 13	جرائم المقابر الجماعية
Week 14	احداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق
Week 15	التصنيف الزمني لمقابر الإبادة الجماعية في العراق للمدة 1963-2023
Week 16	**Final Exam**